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Chen et al.

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(54) **INDUCTIVE CHARGER WITH MAGNETIC SHIELDING**

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(57) **ABSTRACT**

To recharge an implanted medical device, an external device, typically in the form of an inductive charger, is placed over the implant to provide for transcutaneous energy transfer. The external charging device can be powered by a rechargeable battery. Since the battery is in close proximity to the charge coil, the large magnetic field produced by the charge coil induces eddy currents that flow on the battery's metallic case, often resulting in undesirable heating of the battery and reduced efficiency of the charger. This disclosure provides a means of shielding the battery from the magnetic field to reduce eddy current heating, thereby increasing efficiency. In one embodiment, the magnetic shield consists of one or more thin ferrite plates. The use of a ferrite shield allows the battery to be placed directly over the charge coil as opposed to outside the extent of the charge coil.

20 Claims, 8 Drawing Sheets